On the oblique Refraction of Iceland Crystal. *By* William Hyde Wollaston, *M.D. F.R.S.* Read June 24, 1802. [*Phil. Trans.* 1802, *p.* 381.]

In the preceding communication Dr. Wollaston inserted two different measures of refractive powers distinctly observable in the Iceland crystal, as well as an estimate of its dispersive power; but he has reserved for this treatise some remarks, which the same mode of investigation has enabled him to make on its oblique refraction. To this he was led by the consideration that the law to which Huygens had reduced this refraction, however founded in truth, could not be easily verified by any of the former methods of measurement.

According to the Huygenian hypothesis, light proceeding from any luminous centre is propagated by vibrations of a medium highly elastic, that pervades all space. In ordinary cases the incipient undulations are of a spherical form; but in the Iceland crystal they appeared to him to be portions of an oblate spheroid, of which the axis is parallel to the short diagonal of an equilateral piece of crystal, and its centre the point of incidence of the ray. Hence he deduced a ratio between the sine of incidence, and the sine of refraction (that is, the ordinate of the spheroidical undulation) in any section of the spheroid.

In a geometrical deduction our author shows that his observations on this substance accord throughout with the hypothesis of Huygens, the measures he has taken corresponding more nearly than could well happen in case of a false theory. This is illustrated by various examples, in which the refractive power is estimated according to various directions of the plane of incidence; and the data are pointed out for the construction of the spheroid, by which these refractions are regulated. Lastly, a comparative view of the angles observed, and those obtained by computation, is reduced into a table, from which, by their near agreement, we collect an additional proof of the accuracy of the results.

An Account of some Cases of the Production of Colours, not hitherto described. *By* Thomas Young, *M.D. F.R.S. F.L.S. Professor of Natural Philosophy in the Royal Institution.* Read July 1, 1802. [*Phil. Trans.* 1802, *p.* 387.]

In a former paper Dr. Young, treating of certain phænomena of coloured light, mentioned a law, according to which it appears, that whenever two portions of the same light arrive at the eye by different routes, either exactly or very nearly in the same direction, the light becomes most intense when the difference of the routes is any multiple of a certain length, and least intense in the intermediate state of the interfering portions, and that this length is different for light of different colours. In the same paper he showed the sufficiency of this law for explaining all the phænomena in the second and third books of Newton's Optics; and in the present communication he il-